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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

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Svein Erling JOHNSTAD

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: Examiner Deandra M. Hughes

GEOPHYSICAL DATA
ACQUISITION SYSTEM

RESPONSE

THE COMMISSIONER IS AUTHORIZED
TO CHARGE ANY DEFICIENCY IN THE
FEES FOR THIS PAPER TO DEPOSIT
ACCOUNT NO. 23-0975

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the election requirement, the applicant hereby elects with traverse the invention of Fig. 3b (Species A), claims 29 (independent), 32, 33, 35, 36, 38, 39, 40, 42, 48, 52, 57 being readable thereon. Applicant notes that currently claim 29 is generic.

The restriction/election requirement is respectfully traversed for the following reasons:

The election requirement appears to be based on an interpretation that Figs. 3a, 3b, 3c, 3d, 3e, and 3f represent different material embodiments of the invention. However, this interpretation is not correct. Fig. 3a illustrates a more or less complete marine data acquisition set-up with a seismic ship equipped with an airgun and a seismic streamer, the seismic ship being additionally equipped with an electromagnetic signal source and the seismic streamer being equipped with electrodes so as to enable the seismic ship to conduct a dual seismic/electromagnetic survey simultaneously. The specification, on page 5, lines 23-26 describes Fig. 3a as follows:

"Fig. 3a illustrates a marine acquisition system comprising a vessel receiving measurements from a receiver cable, and having one or more seismic sources like an airgun device and/or a seafloor vibration source, and an electromagnetic transmitter in the sea, preferably at the seafloor."

Figs. 3b, c, d, e, and f are illustrations of different combinations of electrodes, in which illustrations the seismic sensors along the cable, and the ship, the seismic and the electromagnetic sources and the lead-in cable of Fig. 3a have been omitted for illustration clarity. The Examiner attention is directed to page 5, line 28 to page 6, line 3 of the specification, which reads:

"Figs. 3b, c, d, e, and f are illustrations of different EM-receiver antenna configurations, in which Fig. 3b each consecutive pair of electrodes pick up a voltage comprised in the EM signal that reaches that particular part of the receiver cable. Fig. 3c, d, and e illustrate doubling and redoubling of the sensor pair length between connected EM sensor electrodes. Fig. 3f shows connection of two or more electrodes in one group which is remote from another group of coupled electrodes, the large separation improving the signal to noise ration considerably for the EM voltage measurement."

The electrode pairs illustrated may be selectably connected using switches (not shown) in the streamer cable illustrated in Fig. 3a. The switches and possible connections are illustrated in Figs. 5a, 5b, 5c, and 5d, and their use are explained in page 10, lines 24-27 of the specification.

"... One or more of the electrodes 4n is arranged for being connectable through a first switch 18An to this common ground line 7. Thus a selected electrode will constitute a reference ground voltage for one or more other electrodes 4."

and further in page 10, line 31 to page 11, line 2:

"The electrode pairs separation may be selected according to desire, e.g. for selecting a particular spatial resolution and sensitivity (which is proportional to electrode separation), by switching relevant switches to connect a pair of sensor electrodes or antennas to an amplifier."

The switches are further described on page 11, lines 16-24 as follows:

"In the same preferred embodiment of the invention, the electrode 4n is connectable via a second switch 18Cn to said second voltage input line 19Bn and further connected to a third switch 18Bn to a local ground line 8n to a similarly arranged switch 18Bn+1 on a nearest neighbour electronic unit 14n+1. The switch 18Bn+1 is further connected to a second voltage input line 19Bn+1 of a voltage amplifier 19n+1 of said nearest-neighbour electronic unit 14n+1. This situation is shown in Fig. 5b, in which the described relevant switches are closed in order for the amplifier 19n+1 is given a signal by electrodes 4n and 4n+1."

Thus, Figs. 3b, c, d, e, and f schematically illustrate different ways of connected pairs of single electrodes or groups of electrodes of wider and wider separations. This connecting of electrodes of desired separations may be done in order to reduce noise or adapt to measuring different wavelengths. Thus, in view of the above, it is submitted that Figs. 3b, c, d, e, and f do not constitute different general inventive concepts under PCT Rule 13.1. It is further submitted that the various illustrated situations of combined electrode separations, illustrated in Fig. 3b, 3c, 3d, 3e, and 3f, do not constitute separate species but a unitary invention of which switches have connected different selectable electrode separations.

Respectfully submitted,

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